

REMARKS

Reconsideration of this application is respectfully requested in view of the foregoing amendments and the following remarks.

Objections to Claims

The objection to claims 2, 3, and 5 has been addressed by deleting the word "further," as suggested by the Examiner in item 3 on page 2 of the Official Action.

The objection to claim 4 has been addressed by inserting ~~-selected-~~ before "signals" in line 2 of claim 4, as suggested in item 4 on page 2 of the Official Action.

Response to Rejections Under 35 U.S.C. § 102

The rejection of claims 1, 2 and 6-9 under 35 U.S.C. § 102(e) as being anticipated by Onoya (US 2001/0034075 A1) is respectfully traversed on the grounds that the Onoya publication fails to disclose or suggest a polarity arrangement timing generator and polarity arrangement programmable data driver that receives the polarity arrangement control signal from the polarity arrangement timing generator, and that:

- distributes pixel polarities aperiodically, as originally claimed, so as to reduce the effect of "crosstalk" between rows and columns, and
- distributes overall *frame* polarities in a complementary manner so that the net polarities of frames is neutralized, as is now claimed, to reduce

unbalanced polarities and resulting "crosstalk" between frames.

The recitation of complementary distribution of frames is supported by, for example, lines 6-10 on page 7 of the original specification and does **not** constitute "**new matter.**"

The claimed invention does two things. First, it provides **aperiodic** distribution of **pixel polarities**, so that the polarity variations along a row or column are aperiodic, thereby reducing crosstalk between the rows or columns. Second, the total polarities of the **frames** are caused to be **complementary**, i.e., are nevertheless caused to add to zero in total, *despite the aperiodicity*, so as to avoid unbalanced polarities of the frames to be displayed, which can also cause crosstalk problems (between frames rather than rows or columns). Onoya only addresses the first problem, namely crosstalk between rows and columns, and does not seek to neutralize or prevent unbalanced polarities between frames. In other words, while Onoya teaches aperiodic polarity variations, Onoya does not disclose or suggest the claimed combination of **aperiodic** polarity distribution of **pixels** and **complementary** polarity distribution of **frames**.

In addition to failing to disclose the claimed combination of aperiodic pixel polarity distribution and complementary frame polarity distribution, it is respectfully submitted that the Onoya patent also fails to teach the claimed combination of a polarity arrangement timing generator and a polarity arrangement programmable data driver. In order to save electric power, the invention uses the polarity arrangement timing generator

(PATG) to generate polarity arrangement control (PAC) signals and the polarity arrangement programmable data driver to receive a polarity arrangement control signal such that the frames are displayed by controlling the patterns with pre-defined aperiodic polarity orders (see amended claims 1 and 8, and FIGS. 3 and 4 and associated description). Specifically, as described in the last paragraph on page 5 of the present application, the polarities of the enhanced analog signals are chosen according to the polarity arrangement control signals sent from the polarity arrangement timing generator to form an aperiodic polarity order of the output polarity distribution (polarity selecting pattern) corresponding to different combinational states.

In comparison with the parity data signal generation portion 203 Onoya, the claimed invention provides an easy way to generate an aperiodic polarity order of the output polarity distribution, simply by selecting (or choosing) one of the 16 combinational states without having to employ any complicated control circuit such as the parity data signal generation portion 203 in Onoya. Power consumption can be reduced to a minimum since no control circuit is required.

Thus, the claimed invention provides simplified aperiodic pixel polarity generation as well as complementary frame polarity distribution, the patterns displayed by the frames being arranged in such a manner that even though polarities within frames are aperiodic, one half of the frames have pixels with polarities exactly opposite to those of the pixels in the other half (steps S601-S603), the entire polarities of the frames thereby

being complementarily distributed and neutralized to zero in total. The Onoya patent, on the other hand, fails to disclose or suggest a display of frames by not only controlling the patterns with pre-defined aperiodic polarity orders, but also arranging the patterns of the plurality of frames to be displayed such that a total value of the polarities is zero. Instead, in Onoya, Figs. 2-7 and associated description, only aperiodic polarity orders are arranged to overcome the prior problem caused by the frames with periodic polarities (see Figs. 21A-21D and associated description). Onoya does not consider the crosstalk problem caused by the unbalanced polarities on the frames to be displayed, as described in the BACKGROUND section of the invention.

Because Onoya fails to disclose the claimed polarity arrangement timing generator and polarity arrangement programmable data driver, which outputs a set of aperiodic polarity order pixels while at the same time providing complementary polarity distribution of frames, as claimed, withdrawal of the rejection of claims 1, 2, and 6-9 under 35 USC 102 is respectfully requested.

Response to Rejections Under 35 U.S.C. § 103

The rejection of claims 1-9 is under 35 U.S.C. § 103(a) as being unpatentable over Jeong (US 6,335,721 B1) hereinafter Jeong721 and further in view of Onoya, and the rejection of claims 1-9 is under 35 U.S.C. § 103(a) as being unpatentable over Jeong (US 6,008,801) hereinafter Jeong801 and further in view of Onoya, are respectfully traversed on the grounds that the two Jeong patents fail to disclose or suggest the claimed combination of aperiodic

pixel polarities and complementary frame polarity distributions.

To the contrary, the Jeong721 and Jeong801 patents disclose periodic rather than aperiodic polarity patterns (see Jeong721's FIGS. 4, 6, 9 and associated description; Jeong801's FIGS. 6-11 and associated description), and accordingly, the modification or combination of the cited references cannot obtain an aperiodic polarity pattern in which the polarities of the patterns of a plurality of frames to be displayed are complementary, as claimed, so as to be neutralized to zero. Namely, since the inventive feature of arranging the polarity patterns of the plurality of frames to be displayed to have a total value of zero, i.e., the patterns displayed by the frames are arranged in such a manner that one half of the frames have pixels with polarities exactly opposite to those of the pixels in the other half, is not shown in Onoya, and Jeong721 and Jeong801 only disclose periodic polarity patterns and systems connected therewith, the Jeong721 or Jeong801 patents could not have suggested modification of the Onoya system to obtain the claimed invention. Furthermore, it is respectfully noted that none of the cited references, including Onoya, Jeong721 and Jeong801, discloses or teaches the display of frames by controlling the patterns with pre-defined aperiodic polarity orders to save power consumption.

Accordingly, the invention is different and improved relative to the cited references, and withdrawal of the rejection of claims 1-9 under 35 USC 103(a) is respectfully requested.

CONCLUSION

In view of the foregoing remarks, reconsideration and allowance of the application are now believed to be in order, and such action is hereby solicited. If any points remain in issue that the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned attorney at the telephone number listed below.

Respectfully submitted,

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